CLAIMS

What is claimed:

1. A method of treating a subject suffering from a spondyloarthropathy comprising administering a therapeutically effective amount of a TNFα antibody, or an antigen-binding fragment thereof, to the subject, wherein the antibody dissociates from human TNFα with a K_d of 1 x 10^{-8} M or less and a K_{off} rate constant of 1 x 10^{-3} s^{-1} or less, both determined by surface plasmon resonance, and neutralizes human TNFα cytotoxicity in a standard *in vitro* L929 assay with an IC_{50} of 1 x 10^{-7} M or less, such that the spondyloarthropathy is treated.

2. A method of treating a subject suffering from a spondyloarthropathy comprising administering a therapeutically effective amount a TNFα antibody, or an antigen-binding fragment thereof, with the following characteristics:

a) dissociates from human TNFα with a K_{off} rate constant of 1 x 10^{-3} s^{-1} or less, as determined by surface plasmon resonance;

b) has a light chain CDR3 domain comprising the amino acid sequence of SEQ ID NO: 3, or modified from SEQ ID NO: 3 by a single alanine substitution at position 1, 4, 5, 7 or 8 or by one to five conservative amino acid substitutions at positions 1, 3, 4, 6, 7, 8 and/or 9;

c) has a heavy chain CDR3 domain comprising the amino acid sequence of SEQ ID NO: 4, or modified from SEQ ID NO: 4 by a single alanine substitution at position 2, 3, 4, 5, 6, 8, 9, 10 or 11 or by one to five conservative amino acid substitutions at positions 2, 3, 4, 5, 6, 8, 9, 10, 11 and/or 12.

3. A method of treating a subject suffering from a spondyloarthropathy comprising administering a therapeutically effective amount a TNFα antibody, or an antigen-binding fragment thereof, with a light chain variable region (LCVR) comprising the amino acid sequence of SEQ ID NO: 1 and a heavy chain variable region (HCVR) comprising the amino acid sequence of SEQ ID NO: 2.

4. The method of any one of claims 1, 2, and 3, wherein the antibody, or antigen-binding fragment thereof, is D2E7.

5. The method of any one of claims 1, 2, and 3, wherein the spondyloarthropathy is ankylosing spondylitis.

6. The method of any one of claims 1, 2, and 3, wherein the spondyloarthropathy is selected from the group consisting of arthritis mutilans, psoriatic arthritis, psoriasis associated with arthritis, Reiter's syndrome, reactive arthritis, and undifferentiated spondyloarthropathies.

7. A method of treating a subject suffering from ankylosing spondylitis comprising administering a therapeutically effective amount of a TNFα antibody, or an antigen-binding fragment thereof, to the subject, wherein the antibody dissociates from human TNFα with a K_d of 1 x 10^{-8} M or less and a K_{off} rate constant of 1 x 10^{-3} s^{-1} or less, both determined by surface plasmon resonance, and neutralizes human TNFα cytotoxicity in a standard *in vitro* L929 assay with an IC_{50} of 1 x 10^{-7} M or less, such that said ankylosing spondylitis is treated.

8. A method of treating a subject suffering from ankylosing spondylitis comprising administering a therapeutically effective amount a TNFα antibody, or an antigen-binding fragment thereof, with the following characteristics:

a) dissociates from human TNFα with a K_{off} rate constant of 1 x 10^{-3} s^{-1} or less, as determined by surface plasmon resonance;

b) has a light chain CDR3 domain comprising the amino acid sequence of SEQ ID NO: 3, or modified from SEQ ID NO: 3 by a single alanine substitution at position 1, 4, 5, 7 or 8 or by one to five conservative amino acid substitutions at positions 1, 3, 4, 6, 7, 8 and/or 9;

c) has a heavy chain CDR3 domain comprising the amino acid sequence of SEQ ID NO: 4, or modified from SEQ ID NO: 4 by a single alanine substitution at position 2, 3, 4, 5, 6, 8, 9, 10 or 11 or by one to five conservative amino acid substitutions at positions 2, 3, 4, 5, 6, 8, 9, 10, 11 and/or 12.

9. A method of treating a subject suffering from ankylosing spondylitis comprising administering a therapeutically effective amount a TNFα antibody, or an antigen-binding fragment thereof, with a light chain variable region (LCVR) comprising the amino acid sequence of SEQ ID NO: 1 and a heavy chain variable region (HCVR) comprising the amino acid sequence of SEQ ID NO: 2.

10. The method of any one of claims 7, 8, or 9, wherein the TNFα antibody, or antigen binding fragment thereof, is D2E7.

11. The method of any one of claims 7, 8, or 9, wherein the TNFα antibody is administered with at least one additional therapeutic agent.

12. A method for inhibiting human TNFα activity in a human subject suffering from spondyloarthropathy comprising administering a therapeutically effective amount of a TNFα antibody, or an antigen-binding fragment thereof, to the subject, wherein the antibody dissociates from human TNFα with a K_d of 1 x 10^{-8} M or less and a K_{off} rate constant of 1 x 10^{-3} s^{-1} or less, both determined by surface plasmon resonance, and neutralizes human TNFα cytotoxicity in a standard *in vitro* L929 assay with an IC_{50} of 1 x 10^{-7} M or less.

13. The method of claim 12, wherein the spondyloarthropathy is ankylosing spondylitis.

14. The method of claim 12, wherein the spondyloarthropathy is selected from the group consisting of arthritis mutilans, psoriatic arthritis, psoriasis associated with arthritis, Reiter's syndrome, reactive arthritis, and undifferentiated spondyloarthropathies.

15. The method of any one of claims 12, 13, and 14, wherein the TNFα antibody, or antigen-binding fragment thereof, is D2E7.

16. A method for inhibiting human TNFα activity in a human subject suffering from ankylosing spondylitis, comprising administering a therapeutically effective amount of a TNFα antibody, or an antigen-binding fragment thereof, to the subject, wherein the antibody dissociates from human TNFα with a K_d of 1 x 10^{-8} M or less and a K_{off} rate constant of 1 x 10^{-3} s^{-1} or less, both determined by surface plasmon resonance, and neutralizes human TNFα cytotoxicity in a standard *in vitro* L929 assay with an IC_{50} of 1 x 10^{-7} M or less.

17. The method of claim 16, wherein the antibody, or antigen binding fragment thereof, is D2E7.

18. A method of treating a subject suffering from a spondyloarthropathy comprising administering a therapeutically effective amount of D2E7, or an antigen-binding fragment thereof, to the subject, such that the spondyloarthropathy is treated.

19. The method of claim 18, wherein the spondyloarthropathy is ankylosing spondylitis.

20. The method of claim 18, wherein the spondyloarthropathy is selected from the group consisting of arthritis mutilans, psoriatic arthritis, psoriasis associated with arthritis, Reiter's syndrome, reactive arthritis, and undifferentiated spondyloarthropathies.

21. A method of treating a subject suffering from ankylosing spondylitis comprising administering a therapeutically effective amount of D2E7, or an antigen-binding fragment thereof, to the subject, such that said ankylosing spondylitis is treated.

22. A method of treating a subject suffering from a spondyloarthropathy comprising administering a therapeutically effective amount of D2E7, or an antigen-binding fragment thereof, and at least one additional therapeutic agent to the subject, such that the spondyloarthropathy is treated.

23. The method of claim 22, wherein the additional therapeutic agent is selected from the group consisting of ibuprofen, diclofenac and misoprostol, naproxen, meloxicam, indomethacin, and diclofenac.

24. A kit comprising:

a) a pharmaceutical composition comprising a TNFα antibody, or an antigen binding portion thereof, and a pharmaceutically acceptable carrier; and

b) instructions for administering to a subject the TNFα antibody pharmaceutical composition for treating a subject who is suffering from a spondyloarthropathy.

25. A kit according to claim 22, wherein the TNFα antibody, or an antigen binding portion thereof, is D2E7.